

## SAFETY DATA SHEET RIOCORD®

Publication Date: 20th April 2010

### 1. Identification of the substance/preparation and of the company/undertaking

#### 1.1. Identification of the substance or preparation

PRODUCT TRADE NAME	OFFICIAL SHIPPING NAME
RIOCORD®	FLEXIBLE DETONATING FUSE FLEXIBLE DETONATING CORD

#### 1.2. Use of the substance/preparation

Consists of a detonating explosive core (pentrite) covered with a woven fabric coated with one or more layers of plastic or other material, which is used for the initiation of explosives in blasting or to carry out the blasting itself.

#### 1.3. Company/undertaking identification

**MAXAM UEB, S.L.**

Zuazo Plant  
48960 Galdácano – Vizcaya  
Tel. (+34) 944 577 200  
Fax. (+34) 944 562 352  
Customer Service:  
Tel. (+34) 917 220 710  
Fax. (+34) 917 220 300  
[info@maxam-ueb.com](mailto:info@maxam-ueb.com)

#### 1.4. Emergency telephone

(+34) 917 220 710 (Monday to Friday - 9:00 to 18:00)  
(+34) 944 577 200 (outside those hours)

### 2. Hazards identification

#### Product classification

This explosive is considered to be a "hazardous" product pursuant to Section 2 of Article 2 of the Spanish Regulations regarding the classification, packaging and labelling of hazardous products (RD 255/2003 of 28 February)

#### Hazards for people

- Improper handling of the product may cause it to explode and this may lead to injuries due to projection of particles.
- These products may detonate in masse by shock, friction, fire, sparks, electrostatic discharges or sympathetic explosions, causing great surge pressure and heat. This can cause serious physical injuries and even death.
- Resulting fumes from the detonation or combustion are toxic and contain nitrogen oxides, (NO<sub>x</sub>) and odourless and colourless carbon oxides (CO and CO<sub>2</sub>). The resulting gases can contain hydrochloric acid. The symptoms caused by exposure to toxic fumes from the detonation are: headaches, nausea, fatigue, confusions and fainting. Inhalation can irritate the respiratory system and cause bronchitis, bronchopneumonia and even, in severe cases, pulmonary edema and death.
- Blasting of rocks can cause large fragments, in unstable positions, with risks of breaking off and flying parts.

**IMPORTANT:** Do not use this product in work sites that contain or may contain flammable gases or powders.

**IMPORTANT:** Surface and inside blasting can cause residual smoke to go through the subsoil to confined spaces (including tunnels, wells, basements, etc.) where it can accumulate and remain for a long time. If you have to enter them after an explosion, always follow the rules for entering confined spaces and check for the presence of toxic fumes before entering.

#### Environmental hazards

The product is not classified as environmentally hazardous. Any possible dangerous are in accordance with their individual components. Respect current regulations. Do not allow to spread into the environment. In case of spillages, collect and then treat as envisaged in Section 13.

### 3. Composition/Information on ingredients

COMPONENT	%	HAZARD SYMBOL	R PHRASES	S PHRASES	CAS No
Pentrite (Pentaerythritol tetranitrate -PETN)	25	E	1-3-44	15-16-21-25-26-33-35-41-45-49-50	78-11-5

### 4. First aid measures

#### a) In case of detonation

Seek medical help immediately in the case of accidental detonation of the product. If case of injuries from flying parts or parts breaking off, take the victim to the nearest hospital.

#### b) Inhalation

If toxic fumes resulting from the detonation or combustion have been inhaled, remove victim out of the area and into the fresh air. Prior to removing the victim, make sure that all the fumes have dispersed before approaching or use the appropriate personal protection equipment (individual respiration equipment, mask with appropriate filter, etc.). In case of heart failure, proceed to immediately carry out basic CPR.

If you have been exposed to those toxic fumes, seek medical help to prevent any possible delayed effects to said exposure. There is a risk of pulmonary edema as a delayed effect of that exposure. If any breathing difficulties appear, call for immediate medical attention.

#### c) Swallowing

Immediately seek medical attention.

#### d) Skin and eyes

If the explosive enters your eyes, wash with running water for some minutes, keeping your eyelids wide open and seek medical attention. If the explosive contacts the skin, clean with neutral soap and water.

### 5. Fire-fighting measures

#### a) Appropriate Fire Fighting Measures

- **Withdraw to an appropriate safety distance**, isolate the area and notify the authorities. Allow the fire to burn out.

#### b) Non-appropriate Fire Fighting Measures

- **Product on fire.** Do not try to put out any fire involving the product. Withdraw to a safe distance from the fire zone, isolate the area and notify the authorities. Allow the fire to burn out. Evacuate the isolated zone immediately and only act to avoid the fire spreading to other products.

**SPECIFIC RISKS.** If these products catch fire, there is an extreme risk of mass detonation and may cause serious injuries. Do not breathe in the toxic fumes produced by the fire, use individual respiration equipment.

## 6. Accidental release measures

### a) Personal protection

Use the appropriate personal protection equipment: approved safety goggles, leather footwear and gloves. Avoid any source of flames, heat, electro-static discharges or radiofrequency energy. Do not smoke. Avoid any type of shock and friction. Do not tread on any spillages of the product.

### b) Environmental precautions

Do not allow the product to spread into the environment (drains, surface and underground water).  
Notify the authorities.

### c) Cleaning methods

- **Confine and isolate the spillage zone.**
- **Do not step on the spilled product.**
- **Isolate the spillage zone.**
- **Remove any damaged box and reels.**
- **If the packaging is broken** seal with adhesive tape.
- **Avoid any factors that affect the stability of the product.**
- **Do not use the damaged product.**
- **The damaged product** should be placed in a ventilated area, out of the sun and far from oxidizing or flammable products until it is destroyed, which shall take place under the direct supervision of a qualified person in accordance with current regulations. Section 13 of this Safety Data File must be taken into account.
- **Notify the authorities.**

## 7. Handling and storage

### 7.1. Handling

- All explosive products are potentially hazardous. They must be kept outside the reach of any external persons and only handled by authorised workers.
- Current regulations concerning the storage, transport, handling and use of explosive must be complied with at all times.
- Always keep the product away from all sources of heat, flames or sparks. No smoking when handling the product.
- Avoid any type of impact, friction on the product or its being crushed.
- Do not use the product if any of the components seems to be damaged.
- Handle carefully without any abrupt movements.
- Handle the product carefully to avoid it being cut, excessively bent or damaged when charging

### 7.2. Storage

- Current regulations and legislation regarding the storage of explosives must be complied with at all times: maximum amounts, minimum distances, special electrical equipment, types of authorised buildings, prevention of static charges, etc.
- Store the product away from the detonators and switches.
- Do not store with flammable, oxidising products or primary explosive.
- Must be stored only with materials from authorised compatible groups.
- Do not smoke or light a fire in the storage areas.
- Store the product in authorised premises that are dry and well ventilated, out of the sun.
- Store between -5 °C and +45 °C.

- Keep the product in the original packaging with their relevant Safety Recommendations Datasheet for its use.
- Do not pile up the pallets on which the product is stored.
- Prioritise the use of the product with the oldest manufacturing date.
- If the product is beyond its expiry date according to label, contact its distributor or manufacturer.

### 7.3. Specific use(s)

There is an extreme risk of the product exploding due to fire, sparks, blows or being crushed. It is designed to be used to ignite explosives in blasting operations.

## 8. Exposure controls/Personal protection

### 8.1. Exposure limit values

SUBSTANCE	TWA	STEL/C	CRITICAL EFFECTS ON WHICH THE TLV IS BASED
<b>Pentrite (Pentaerythritol tetranitrate –PETN)</b>	15 mg/m <sup>3</sup>	-	Irritation

### 8.2. Exposure controls

#### 8.2.1. Occupational exposure controls

The following is a general recommendation. The risk analysis of each installation or each application of the product will establish any other protection required.

- **Respiratory protection.**  
Not required for normal use of the product. Personal protection equipment must be used when entering areas that are not well ventilated after an explosion. Do not inhale fumes from the detonation.
- **Skin protection. Hands.**  
Gloves should be worn when handling these products. Hands should be washed with soap and water after finishing the task and before touching food, drinks or products that are going to be consumed.
- **Eye protection.**  
Even though it is not necessary, the use of approved safety goggles is recommended when handling the product to avoid any particles entering your eyes.
- **Skin protection. Rest of the body.**  
It is usually not necessary, but the use of semiconductor footwear and antistatic clothing when handling the product is advisable.

#### 8.2.2. Environmental exposure controls

The product is practically insoluble in water. Do not allow to spread into the environment and particularly into water. Section 12 "Ecological Information" of this Safety Data Sheet must be taken into account.

## 9. Physical and chemical properties

### 9.1. General information

- **Aspect:** Cord with coloured plastic coating.
- **Smell:** No characteristic smell.

### 9.2. Important health, safety and environmental information

- **Colour of the cord core (pentrite):** white
- **Fusion temperature of the pentrite explosive (PETN):** 141 °C.
- **Deflagration temperature of the pentrite explosive (PETN):** 202 °C.
- **Impact sensivity of the cord core (pentrite, PETN):** 3 N m

- **Friction sensitivity of the cord core (pentrite PETN):** 55 N
- **Explosive properties:** YES
- **Soluble in water:** NO

### 9.3. Other details

- The main product (pentrite) is soluble in the majority of organic solvents.

## 10. Stability and reactivity

### Stability

The product is stable under normal storage conditions during its useful life.

The product may explode in mass if subjected to flames, heat, impact and friction.

### 10.1. Conditions to avoid

- The product may detonate due to fire, impact, friction or crushing.
- Do not store or expose to temperatures over 75 °C.

### 10.2. Materials to avoid

Avoid contact with strong acids and bases.

### 10.3. Hazardous decomposition products

Lead fumes, carbon monoxide and nitrogen oxides.

## 11. Toxicological information

### General information

- The product is a coated cord and the pentrite core will not explode with appropriate handling.
- Not toxic, unless swallowed. Pentrite is a vasodilator and swallowing or inhalation may cause low blood pressure, headache, vomiting, cyanosis, gastroenteritis, nausea and stomach pain.
- Blasting sites may cause toxic fumes, Do not approach the blasting site area until the fumes have dispersed.

### Information regarding risks after detonation

After the detonation, the fumes can cause different toxicological problems due to toxic gases (lead fumes, carbon monoxide and nitrogen oxides).

## 12. Ecological information

### General information

The ecological risks are only those arising from detonating the product.

- **Ecotoxicity (pentrite core)**
  - Toxicity in fishes: Between 320000 and 10000000 µg / l 96 hours LC50 (Lethal).
  - Toxicity in invertebrates: 8500000 µg/ l 48 hours LC50 (Lethal).
- **Mobility**
  - No data available. Parameter being studied.
- **Durability and degradability.**
  - No data available. Parameter being studied.
- **Bio-accumulation potential**
  - No significant bio-accumulation potential.
- **Other toxic effect**
  - No available data.

Any waste has to be destroyed in accordance with Section 13 below and taking into consideration the regulation contained in European Directives 75/442/EEC and 91/689/EEC.

### 13. Disposal considerations

#### General information about the product

The product or its waste products are considered to be hazardous waste and must be treated in accordance with the regulations contained in European Directives 75/442/EEC and 91/689/EEC or with any other legislation in force at each place of use.

#### Information regarding the disposal of intact products


Intact products shall be eliminated by explosion under the direct supervision of a qualified person and in an appropriate place in accordance with current regulations in each place of use. There is a risk of explosion when destroyed by combustion.

### 14. Transport information

#### a) Official shipping name

FLEXIBLE DETONATING FUSE / FLEXIBLE DETONATING CORD

#### b) Information about the packaging methods and official shipping name

<b>UN NUMBER</b>	0065
<b>TRANSPORT CLASSIFICATION</b>	1.1D
<b>PACKAGING (GROUP II)</b>	P 139
<b>LABELLING</b>	

## 15. Regulatory information

### a) Legislation applicable in all countries

In any country where this product is used, the legislation and regulations relating to the use, transport and storage of explosive, prevention of occupational risks legislation, labour legislation and regulations, legislation and regulations regarding entrance into confined spaces and any other legislation or regulations relating to this product or to its use and waste shall be respected.

### b) General legislation applicable in Spain

- Royal Decree 230/1998, of 16 February, approving the Explosives Regulations
- Royal Decree 863/1985 approving General Regulations on Basic Mining Safety Rules and the ensuing ITCs (Complementary Technical Instructions).
- Royal Decree 255/2003, of 8 February, approving the Regulations regarding the Classification, Packaging and Labelling of Hazardous Products.
- ADR, European Agreement concerning the International Carriage of Dangerous Goods by Road.

## 16. Other information

### a) Safety information summary

- Prior to using this product, read the Safety Recommendations included herein and in the box of the product.
- Any worker who is going to handle or work with this product has to be informed in detail about the contents of this document.
- This product has to be handled carefully and only used by authorised workers who hold the official accreditation when so required by law.
- The product must be stored, handled and used in accordance with the procedures of good industrial hygiene practices and pursuant to the applicable legal regulations.
- Compliance of all the legislation, standards and regulations (state, local or other sphere) referring to the transport, storage and use of this product.

### b) Meaning of the R and S phrases

- **R phrases**
  - R1** Explosive when dry
  - R3** Extreme risk of explosion by shock, friction, fire or other source of ignition
  - R44** Risk of explosion if heated under confinement
- **S phrases**
  - S15** Keep away from heat
  - S16** Keep away from sources of ignition
  - S21** When using do not smoke
  - S25** Avoid contact with eyes
  - S26** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
  - S33** Take precautionary measures against static discharges
  - S35** This material and its container must be disposed of in a safe way
  - S41** In case of fire and/or explosion do not breathe fumes
  - S36/37/39** Wear suitable protective clothing, gloves and eye/face protection
  - S45** In case of accident or if you feel unwell, seek medical advice immediately and show this container or label when possible
  - S49** Keep only in original container
  - S50** Do not mix with... (to be specified by the manufacturer)

**The information contained in this Safety Datasheet is based on our current knowledge and experience about the product, relating to safety, health and the environment. No guarantees can therefore be made that this information is complete and accurate. This information does not guarantee the properties of the product.**

**The user is employees in terms of the risks of the product and the preventive measures that responsible for determining the appropriate use of this information and the described product, the training of his minimise them, together with the mandatory compliance of the relevant legally applicable provisions regarding safety, health and environment.**